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ABSTRACT

The report presents evaluation data on a program to provide remedial reading instruction to eligible handicapped students in public and nonpublic schools. Students received individualized, diagnostic prescriptive instruction from a program remediation team consisting of a reading teacher and paraprofessional assistant, as well as from their classroom teacher. During the 1982-83 school year, the program served a total of 16,265 students, of whom 226 were in nonpublic schools. Nearly three-fifths were served in classes for learning disabled students and one-fifth in classes for emotionally handicapped pupils. Analyses of qualitative data (from program observations and staff interviews) and quantitative data (from criterion- and norm-referenced tests) indicated that the program was fully implemented and effectively promoted reading skill mastery and general improvement in reading comprehension. Among additional findings were that mastery rates were highest for elementary students in the regions and for high school students in citywide services, and that mean gain in normal curve equivalents for program students was higher than that for a non-program comparison group. Recommendations are made regarding teacher training, teacher cooperaton, and parent education. (CL)

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INDIVIDUALIZED READING SERVICES FOR HANDICAPPED STUDENTS

1982-83

OEE Evaluation Report

Office of Educational Evaluation
New York City Public Schools
110 Livingston Street
Brooklyn, New York 11201

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ANNUAL EVALUATION REPORT

CHAPTER I/P.S.E.N.

INDIVIDUALIZED READING
SERVICES
FOR HANDICAPPED STUDENTS

1982-83

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A SUMMARY OF THE REPORT

This program, which was a full-year extension of the 1981-82 half-year model, was operated by the Division of Special Education (D.S.E.) and provided remedial reading instruction to eligible handicapped students in public and nonpublic schools. Students received individualized, diagnosticprescriptive instruction from a program remediation team consisting of a reading teacher and paraprofessional assistant, as well as their classroom teacher.

During the 1982-83 school year, the program served a total of 16,265 students in 220 community, special, and nonpublic schools. Of the total project population, 14,319 attended regional programs (201 in classes for limited English proficient (L.E.P.) students), 1,720 attended low-incidence programs of the Citywide Services Unit, and 226 were in nonpublic schools. Nearly three-fifths of the population, which ranged in age from seven to 21 years ($\overline{M}$ = 12), were served in Health Conservation 30 classes for learning disabled pupils, and one-fifth were in Classes for the Emotionally Handicapped (C.E.H.).

Analyses of qualitative data from program observations and staff interviews and quantitative data from both criterion- and norm-referenced tests indicated that the program was fully implemented and effectively promoted the target population's mastery of reading skills and general improvement in reading comprehension.

The program objective was surpassed by all target groups (i.e., regional, citywide, nonpublic, and L.E.P.). Moreover, an analysis of sustained effects revealed that in June 1983 nearly half of all continuing students mastered reading comprehension skills at a higher mastery level than they did in June 1982.

Supplementary findings were as follows:

- Differences in the rate of mastery of reading objectives were observed among special education programs within regions and citywide services. The highest rates of mastery were achieved by the Neurologically Impaired and Emotionally Handicapped program in the regions and the Health Conservation 30 program in citywide services.

- Mastery rates were highest for elementary school students in the regions and high school students in citywide services.

- For all program participants, approximately half of the objectives mastered were in comprehension and one-third in phonics. Again, differences were observed among special education programs with comprehension objectives comprising three-fifths of the skills mastered by regional C.E.H. students but only one-quarter of the skills mastered by students in classes for the Educable Mentally Retarded.

- Analysis of the 1982 and 1983 citywide tests showed that the mean gain in normal curve equivalents for program students was higher than that for a non-program comparison group.

Recommendations based on the findings included the following:

- encourage increased cooperative instructional planning between Chapter 1/P.S.E.N. and special education classroom teachers;

- strengthen efforts to provide pre-service and in-service training to the special education classroom teachers of target students; and

- expand efforts to improve attendance at parent education workshops.

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I. INTRODUCTION

This is the report of the evaluation of the 1982-1983 Chapter 1/P.S.E.N. Individualized Reading Services for Handicapped Students Program. This program, which was operated by the Division of Special Education (D.S.E.) of the New York City Public Schools, was designed to provide remedial reading instruction to eligible English-speaking and limited-English-proficient (L.E.P.) special education students in 213 public schools and seven nonpublic schools throughout the five boroughs.

This program was a full-year extension of the 1981-82 half-year model which evolved from the Prescriptive Reading Model of the 1980-81 Title I/P.S.E.N. Umbrella. The evaluation of the 1980-81 Umbrella indicated that the Prescriptive Reading Model effectively promoted the mastery of reading skills of special education students who varied in age and disability; the evaluation of the 1981-82 half-year model yielded similar findings.

The pupil achievement objective of the program was that by June 30, 1983, 80 percent of the students would master new reading skills at the rate of one skill per 20 sessions attended. Pupil achievement was assessed through ongoing administration of the Individualized Criterion Referenced Test (I.C.R.T.) for monolingual classes, and the Leamos Spanish Developmental Reading Program for bilingual classes.

The purpose of the evaluation was twofold:

- to document the level and quality of program implementation; and
- to assess the program's impact upon pupil achievement.

Office of Educational Evaluation (O.E.E.) field consultants gathered program implementation data through observations and staff interviews at 40 program sites. Program teachers recorded pupil achievement data for the I.C.R.T. and Leamos tests on O.E.E.-developed data retrieval forms and standardized test scores were obtained from citywide test tapes.

Following a description of the program and the target population, the report presents the assessment of program implementation in Chapter III, analyses of pupil achievement in Chapter IV, and conclusions and recommendations in the final chapter.

II. PROGRAM DESCRIPTION

ADMINISTRATION

This program was administered by the D.S.E. Reimbursable Programs Unit through field-level coordinators in the six D.S.E. regions and Citywide Services Unit. The coordinators were responsible for the day-to-day operation of the program, including overall coordination of services, staff recruitment and development, maintenance of records, and distribution of materials and supplies. Sixteen assistant coordinators were responsible for teacher training and assisting coordinators in overall program implementation. Each assistant coordinator worked with approximately 20 remediation teachers, 20 paraprofessionals, and 80 special education classroom teachers.

PROGRAM MODEL

This program was designed to promote the mastery of reading objectives by Chapter 1 and P.S.E.N.-eligible handicapped students through individualized remediation and staff development. During the 1982-83 school year, the program served a total of 16,265 students in 220 community, special, and nonpublic schools. (An additional 363 were transferred or discharged after a brief period of attendance.) Of the total project population, 14,319 attended regional programs, 1,720 were in low-incidence citywide programs, and 226 attended nonpublic schools. The project served 11,254 students for the full school year; 2,007 attended only the fall semester and 3,004 only the spring semester.

A whole-class model of instruction was used, in which a team consisting

of a Chapter 1/P.S.E.N. reading teacher and paraprofessional assistant worked with four or five tax-levy classroom teachers and their classes for a minimum of four periods per week. This model was designed to retain class integrity, reduce scheduling problems, and facilitate the integration of remedial and basic reading instruction.

Using a diagnostic-prescriptive methodology, classroom and reading teachers planned each student's remedial reading instruction on a daily and weekly schedule, based upon the assessment of performance through the I.C.R.T. and informal methods. As students mastered new skills, new objectives were set. Classroom teachers were encouraged to use a diagnostic-prescriptive methodology for basic reading instruction, as well.

The seven nonpublic schools employed a small-group, pull-out model in which students received remedial reading instruction outside of their classrooms for a minimum of 90 minutes per week.

TARGET POPULATION

This section presents descriptions of the public and nonpublic school student populations served by the program, including age, special education program, and school level.

English-Speaking Public School Population

The program served 15,838 English-speaking public school students who received basic educational services in regional and citywide special education programs; 10,987 students were served for the entire project year, 1,932 students for the fall semester only, and 2,919 for the spring semester

only. Of the students served in the fall, 81 percent entered the program in September and 14 percent in October; 77 percent of the new spring students began the program in February, nine percent in March, and 14 percent in April.

The regional distribution of the English-speaking public school sample was as follows: 21 percent from the Bronx, 19 percent from Queens, 17 percent from Brooklyn East, 14 percent each from Manhattan and Brooklyn West, and four percent from Staten Island. Eleven percent attended citywide programs.

More than half (54 percent) of the regional students were in elementary school, 19 percent in intermediate school, and 27 percent in junior high. The breakdown by school level for citywide-services students was 26 percent elementary school, 14 percent intermediate, 26 percent junior high, and 34 percent secondary. (The secondary school programs were located at Occupational Training Centers, Schools for Career Development, and Special Day Schools.)

A breakdown of the regional and citywide population by special education program (see Table 1) indicated that nearly 60 percent of the regional students were served in Health Conservation 30 (H.C. 30) classes for the learning disabled. Other programs which served regional students were Classes for Emotionally Handicapped (C.E.H.), classes for Educable Mentally Retarded students (E.M.R.), and the program for Neurologically Imparied and Emotionally Handicapped children (N.I.E.H.); the relative percentages for these program were 16 percent, 11 percent, and 11 percent, respectively.

The program that served the largest percentage (58 percent) of citywide

Table 1

Distribution of Special Education Programs[a]
for Regional and Citywide Students

Regional			Citywide		
Program	N	Percent of Sample	Program	N	Percent of Sample
H.C. 30	8,482	59	C.E.H.	1,065	58
C.E.H.	2,232	16	SLHIC	489	27
E.M.R	1,546	11	H.C. 30	115	12
N.I.E.H.	1,534	11	Deaf	57	3
Other	568	4		4[b]	
	14,362	100		1,830	100

[a]The special education programs are Health Conservation 30 (H.C. 30) for students with moderate neurological impairment, Classes for the Emotionally Handicapped (C.E.H.), classes for the Educable Mentally Retarded (E.M.R.), classes for students with Neurological Impairment and Emotional Handicap (N.I.E.H.), and the program for Speech, Language, and Hearing-Impaired Children (SLHIC).

[b]Includes four "others".

- Nearly three-fifths of the regional population were served in H.C. 30 classes.
- Nearly three-fifths of the citywide students were served in C.E.H.; 27 percent were in SLHIC.

students was C.E.H. Other citywide programs were classes for Speech, Language, and Hearing Impaired Children (SLHIC), H.C. 30, and classes for deaf students; the relative percentages of citywide students in these programs were 27 percent, 12 percent, and three percent, respectively.

The regional students tended to be younger than their citywide counterparts. (See Table 2.) Seventy-six percent of the regional students, compared to 36 percent of the citywide students, were 13 years of age or younger; similarly, 21 percent of the citywide sample, but less than one percent of the regional sample, were 17 to 21 years of age.

Differences in age distributions were also observed among special education programs within the regions and citywide programs. (See Table 3.) Within regions, N.I.E.H. classes showed a smaller percentage (19 percent) of younger students (i.e., ages six to 10) than the other programs. Within citywide programs, H.C. 30 had a higher percentage of older students than C.E.H.; the latter had more older students than N.I.E.H. The older H.C. 30 students attended Schools for Career Development.

LEP Public School Population

The program served 201 L.E.P. students at seven sites; one-third were in Manhattan and two-thirds in the Bronx. More than 80 percent of the students entered the program in September with 155 served for the full year, 17 for the fall only, and 29 for the spring only.

The LEP students ranged in age from eight to 16 years with a mean of 12 (S.D. = 2). Fifty-six percent were in elementary schools, 30 percent in intermediate, ad 14 percent in junior high schools. Four-fifths of the population was served in bilingual H.C. 30 classes, 16 percent in bilingual

Table 2

Age Distribution of
Regional and Citywide Students

	Regions			Citywide		
Age	N	Relative %	Cumulative %	N	Relative%	Cumulative %
5-7	161	1	1	2	<1	<1
8-10	3,530	25	26	168	10	10
11-13	7,151	50	76	475	26	36
14-16	3,479	24	100	779	43	79
17-21	22	<1	100	400	21	100
	14,343	100		1,824	100	
Mean	11.9			14.3		

- The citywide population was older than their regional counterparts. The mean age of the regional population was 11.9; the mean for citywide was 14.3
- Fifty percent of the regional students were 11 to 13 years of age; 43 percent of the citywide were 14 to 16.
- Twenty-one percent of the citywide population were 17 or over.

Table 3

Crosstabulation of Age by Special-Education Program for Regional and Citywide Students

	Regional				Citywide		
Age	H.C. 30	C.E.H.	E.M.R.	N.I.E.H.	C.E.H.	H.C. 30	SLHIC
6 - 10	26%	28%	27%	19%	5%	0%	23%
11 - 14	66	63	61	69	39	13	72
15 - 21	8	9	12	12	56	87	5
N	(8,482)	(2,232)	(1,546)	(1,534)	(1,065)	(126)	(489)

NOTE. Table entries represent the percentage of a special-education program's students in each age group.

- Among regional programs, N.I.E.H. had fewer students aged six to ten than other programs and a larger percentage of 11-14 year olds. E.M.R. and N.I.E.H. and a larger percentage of 15-21 year olds than H.C. 30 and C.E.H.

- Among citywide programs, H.C. 30 had the largest percentage of students aged 15-21; SLHIC had the smallest. Nearly one-quarter of the SLHIC population was six to ten years of age compared to five percent for C.E.H. and none for H.C. 30.

E.M.R., and three percent in bilingual N.I.E.H.

Nonpublic School Population

The program served a total of 231 nonpublic school students, five of whom were discharged. Of the 226 who received remedial instruction, 112 were served for the full year, 58 during the fall only, and 56 during the spring only.

The students ranged in age from seven to 20 years with a mean of 12.6 (S.D. = 3). Sixty percent were in elementary school, 15 percent each in intermediate and junior high school, and 14 percent in high school. Most of the students were in the following disability groups: specific learning disabled and emotionally handicapped, 36 percent each; neurologically impaired with emotional handicap, 10 percent; educable mentally retarded, eight percent; multiply handicapped, seven percent; and speech and language impaired, five percent.

III. ASSESSMENT OF IMPLEMENTATION

METHODOLOGY

To assess the extent and quality of program implementation, O.E.E. field consultants observed instruction, reviewed program and student records, and inteviewed staff at a representative sample of 40 (one of every five) program sites. At these sites, field consultants interviewed 41 Chapter 1/P.S.E.N. remediation teachers, as well as 40 other staff members, including Chapter 1/P.S.E.N. paraprofessional assistants, site supervisors, and program coordinators.

Data were recorded on formal interview and observation schedules, which were designed by O.E.E. in consultation with program administrators and focussed on the following: instructional methods; planning and communication; materials and supplies; staff training; and parent involvement.

FINDINGS

Instructional Methods

The assessment of instruction focussed on the extent to which sample sites demonstrated the following methodological characteristics: individualization; diagnostic-prescriptive teaching; and diversity of instructional methods.

Individualization: To facilitate individualization, each remediation class was staffed by a Chapter 1/P.S.E.N. remediation team, including a reading teacher and paraprofessional assistant, as well as the special education classroom teacher. Average class attendance was eight students. Typically, students were divided into three groups by functional achievement

level; reading teachers served the lowest group, paraprofessionals served the highest, and classroom teachers served the middle group. At a few sites, where grouping was not rigidly followed, staff alternated among groups and individual students.

A high degree of involvement in direct instruction by all staff (i.e., remediation teachers, classroom teachers, and paraprofessionals) was essential to successful individualization. In 98 percent of the class sessions observed, the remediation teachers were actively involved in direct instruction. In most of these classes (85 percent), classroom teachers were also actively involved; in the remaining 15 percent they were not. In 96 percent of the classes paraprofessionals were actively engaged in instruction, usually tutoring individual students.

A high degree of individualization was also indicated by the manner in which students were grouped for instruction. In more than half of the 118 class sessions observed, students were taught in small groups which were formed on the basis of functional reading level and specific short-term reading objectives; instruction was completely individualized in nearly one-third. In most classes instructional grouping was flexible allowing students to change groups as they mastered skills. Flexible grouping facilitated the appropriate individualization of instruction.

Diagnostic-Prescriptive Methodology: An essential part of the diagnostic-prescriptive methodology involved the administration of the I.C.R.T. and Leamos tests, including pretests in the fall and Benchmarks (brief assessment updates) thoughout the year. These tests were designed to assess students'

needs and abilities on an ongoing basis. Information was gathered during the interviews on various aspects of the assessment process.

Most reading teachers (38 of the 41 interviewed) administered the I.C.R.T. baseline assessment promptly in September or October. However, many reported a need for faster return of the graded pretests and individual prescriptions.

All teachers used the baseline assessment data for establishing individual short-term objectives, grouping, and instructional planning; the more experienced teachers supplemented there data with informal testing and their own judgments.

Inspection of student records at the sample sites yielded further evidence of the diagnostic-prescriptive methodology. Most teachers selected short-term I.E.P. reading objectives from the students' I.C.R.T. prescriptions, and used the Benchmarks to update objectives and measure their attainment.

The diagnostic-prescriptive method was facilitated by diligent record-keeping procedures. Pupil folders contained I.C.R.T. printouts and profile cards, I.E.P. attachments, work samples, and progress records. Teacher folders contained eligibility lists, paraprofessional logs, records of conferences with classroom teachers, parents, and other visitors, Chapter 1/P.S.E.N. and other memoranda, and materials inventories. Coordinators indicated that the teachers were effectively maintaining records. However, Chapter 1 teachers and paraprofessionals, classroom teachers, and coordinators all indicated that there was an excessive amount of redundant paperwork.

Diversity of Instructional Methods: To meet the diversity of students' individual needs and learning styles, teachers were observed using a wide variety of instructional methods and materials. For example, during a number of lessons on details and main idea, students read stories aloud and then answered questions about main ideas and supporting details. One teacher had students match a list of characters from The Wizard of Oz with a list of character traits. In a typical phonics lesson on short/long vowels, the effect of adding a silent "e" to short vowel words was demonstrated by the teacher with a chart and "magic wand." To learn vocabulary, students defined words by using dictionaries, cue cards, readers, and games. In one lesson, students used the dictionary to find definitions, and then listed the defined words in alphabetical order.

A wide range of instructional methods and materials was also evident in language-arts lessons. Students were asked to write poetry, compositions on such subjects as "King Kong" and "I Kept My Promises," pen-pal letters, and journals. During one lesson, students were asked to read various words aloud and then use them to compose sentences. In another lesson on listening and speaking skills, a group of students played Monopoly and discussed rents, mortgages, land values, and profits.

Planning and Staff Communication

Communication between the remediation teams and special education classroom teachers to coordinate instructional planning was crucial to program success. All project staff and classroom teachers reported that they regularly conferred with each other. Typically, staff meetings were brief and informal, taking place before or after school or during lunch and

homeroom periods. At nine of the 41 sample sites, formal meetings were regularly scheduled. Seven remediation teachers indicated that additional time was needed for consultation.

To assess the extent of cooperation between remediation and classroom teachers, they were asked how they planned instructional sessions. At more than half of the sample sites, remediation and classroom teachers collaborated in instructional planning; at the remaining sites, planning was performed only by the remediation teachers.

Materials and Supplies

To facilitate individualization of instruction, the program proposed to provide a varied supply of the most appropriate and current instructional materials. To document the extent to which this was achieved, the types and amounts of materials and supplies observed at the sample sites were recorded.

A large and varied array of materials and supplies were observed, including 33 different textbooks, 43 different workbooks, numerous kinds of kits, objects, flashcards, worksheets, pictures, charts, games, newspapers, and arts and crafts materials. The widespread use of audiovisual equipment and manipulatives indicated a multi-sensory approach.

Chapter 1/P.S.E.N. and classroom teachers were asked which materials they found particularly effective and which they used most often. Teachers endorsed a wide variety of materials (106 different ones with 39 mentioned more than once) and cited the following most frequently: Readers Digest Skill Builders and Globe Reading Kit, The Barnell-Loft Multiple Skill Series, S.R.A. Sprint Scholastic and Skill Packs, and The Hoffman Comprehension Kit.

Most of the materials cited were for comprehension, but a number focused on phonics or language arts. Teachers mentioned materials for vocabulary and word analysis instruction less frequently than comprehension and phonics.

Nearly all sites had sufficient quantities of varied materials. A few teachers expressed a need for more low-level, high-interest materials and a larger supply of consumables, especially workbooks.

Staff Training

The coordinators and assistant coordinators conducted staff training, including orientation, monthly workshops, and on-site consultations and demonstration lessons. Training focussed on providing remediation teachers and paraprofessional assistants with an overview of the program, and introducing appropriate and current instructional methods and materials.

During interviews, remediation teachers indicated that the monthly workshops were particularly worthwhile, as were on-site demonstration lessons. In addition to substantive information, the monthly workshops afforded remediation teachers an opportunity to share ideas and meet colleagues, which fostered a sense of program unity. Some teachers suggested that useful topics for future workshops might include further training in the use of instructional materials and remediation techniques for bilingual students.

Program teachers and coordinators saw a general need to strengthen training of special education classroom teachers. Methods that were suggested included allowing classroom teachers to attend monthly workshops, on-site training meetings, or formal pre-service orientation sessions. Some program staff indicated that better training of classroom teachers would enhance

their contribution to program planning and direct instruction and ensure that they understand program goals and objectives.

Parent Involvement

A program goal was to encourage parents to reinforce remedial instruction at home. While most remediation teachers communicated with parents by telephone, correspondence, or school meetings, the principal vehicle for parental involvement was parent-education workshops. Although these workshops provided useful information to enable parents to participate in the educational process, attendance was often low. During interviews, program staff suggested methods to bolster parent workshop attendance, including holding regional meetings at alternate sites, providing carfare and baby-sitting, and extending personal invitations to attend workshops.

IV. STUDENT ACHIEVEMENT

This chapter presents descriptive analyses of pupil attendance and reading achievement data. Pupil achievement was monitored through ongoing individual administration of the I.C.R.T. or Leamos, as described in Chapter II. Achievement and attendance data were reported by program reading teachers on O.E.E.-designed data retrieval forms. Teachers submitted data twice, once at the end of January and again in the middle of June, 1983.

In reviewing the findings below, two points should be kept in mind. First, periods of intervention vary across students according to dates of program entrance, discharge, or data collection. (The distribution of start-up dates is described in Chapter II). Second, since complete data sets were not available for all target students, the Ns for the analyses below vary.

The following sections report findings on student attendance, the program's achievement objective, and analyses of the number and types of reading skills students mastered, as well as the instructional levels on which they performed. In addition, sustained gains are analyzed for a sample of continuing Chapter 1/P.S.E.N. students and standardized citywide reading test scores of program and non-program students are compared.

ATTENDANCE

In addition to basic tax-levy reading instruction, each student received Chapter I/P.S.E.N. remedial reading instruction for 45 minutes per day, four or five days a week; approximately half were served four days a week and

half five days a week. Table 4 summarizes data on program and basic attendance and instructional time. On average, regional students received more program and basic reading instruction than students in citywide programs. Mean program sessions for regional students was 82 (S.D. = 28.0) and mean basic reading sessions was 90 (S.D. = 32.0), representing an average of 126.8 (S.D. = 35.0) total hours (i.e., program and basic) of reading instruction; the respective mean sessions for citywide students were 77 (S.D. = 30.3) and 80 (S.D. = 33.8), for an average of 113.8 (S.D. = 33.5) total hours. Also, mean percentage attendance was higher for the regional (M = 80.7 percent, S.D. = 23.1) than citywide students (M = 76.0 percent, S.D. = 21.9). Overall, L.E.P. students received the most program and basic reading instruction while nonpublic school students received the least.

EVALUATION OF THE PROGRAM OBJECTIVE

The objective of the program was that 80 percent of the students would master at least one reading skill per 20 (45-minute) program sessions. The target population's mastery of specific reading skills was documented through on-going administration of the I.C.R.T. or Leamos. For the I.C.R.T., baseline data were gathered for each pupil through administration of Form A or B. These data were used to generate computer prescriptions of short-term instructional reading objectives. Upon completion of instruction for each objective, mastery was ascertained through immediate post-testing on the I.C.R.T. Benchmarks, brief tests which are keyed to each objective and closely parallel the items in Forms A and B.

To determine whether the program objective was attained, a mastery rate was calculated for each student. First, the number of 20-session blocks

Table 4

Mean Chapter 1/P.S.E.N. and Tax-Levy Sessions, Hours, and Percentage Attendance for Reading Instruction by Population Group[a]

Group	N	CHAPTER 1/P.S.E.N. Mean Sessions	CHAPTER 1/P.S.E.N. Mean Hours	TAX LEVY Mean Sessions	TAX LEVY Mean Hours	TOTAL Mean Sessions	TOTAL Mean Hours	TOTAL Mean % Attend
Public School								
Regional	14,117	82 (28.0)	59.6 (19.4)	90 (32.0)	67.2 (29.1)	172 (42.5)	126.8 (35.0)	80.7 (23.0)
Citywide	1,720	77 (30.3)	54.1 (22.0)	80 (33.8)	59.7 (25.4)	157 (45.4)	113.8 (33.5)	76.0 (21.9)
LEP	201	94 (35.2)	70.5 (27.9)	92 (37.5)	68.9 (28.1)	186 (70.7)	139.4 (54.8)	82.1 (14.6)
Nonpublic School	226	43 (14.0)	27.6 (12.3)	75 (32.2)	56.1 (27.9)	118 (35.0)	83.7 (30.5)	82.0 (12.1)

[a]Cell entries are means and (standard deviations).

- On average, LEP students received more program and tax-levy reading sessions and instructional hours than the other population groups; nonpublic school students received the fewest.
- Regional students received more pogram and basic reading instruction than citywide students and had a higher mean percentage attendance.

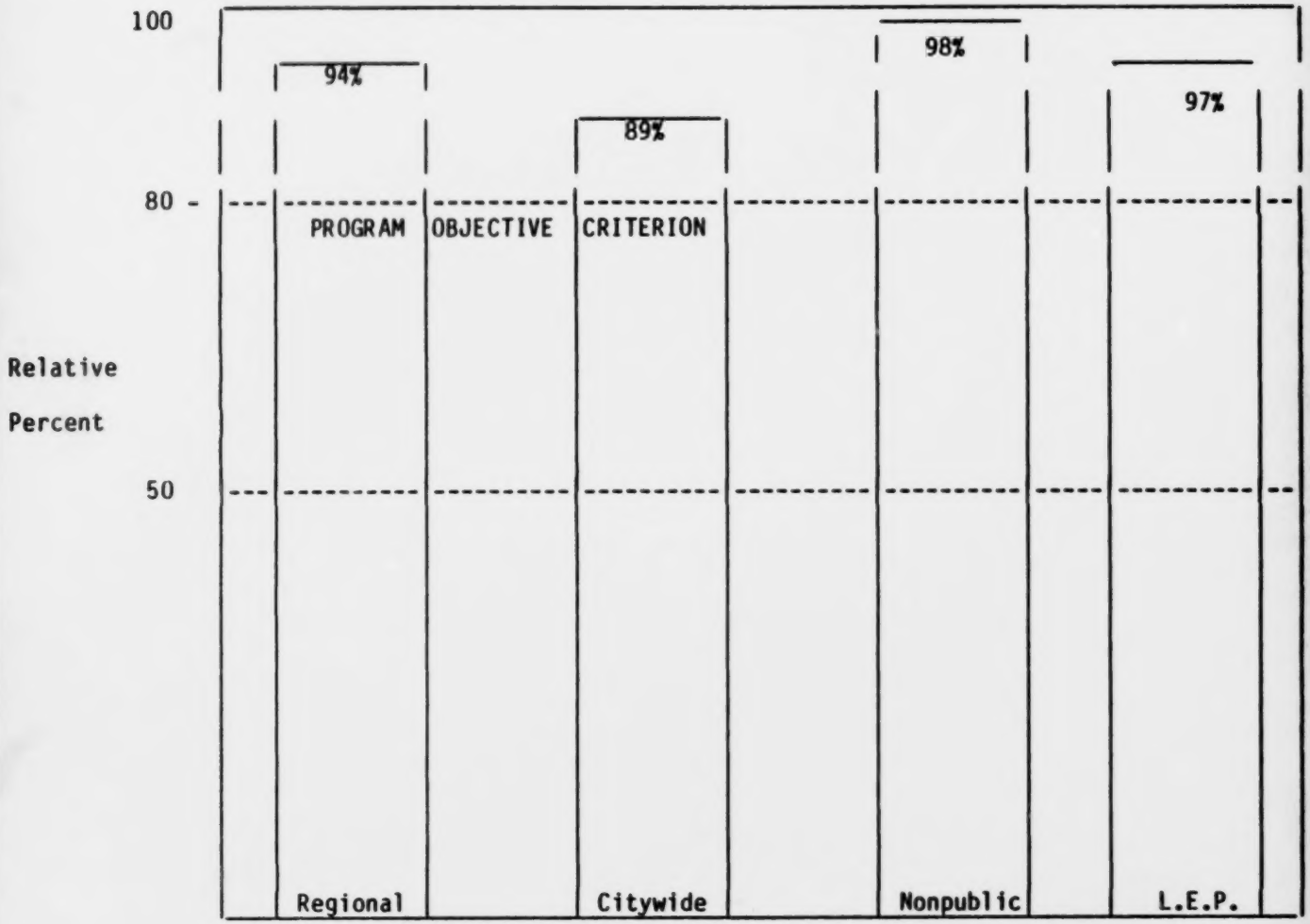
each student attended was computed by dividing each student's total minutes of program instruction by 900 (i.e, the equivalent in minutes of 20 sessions, 45-minutes each.) This quotient was divided into the total number of reading objectives mastered to yield a student's mastery rate (i.e., the number of objectives mastered per 20 program sessions.) Mean mastery rates were computed for the total population and separately for the regional, citywide, L.E.P., and nonpublic school students.

Figure 1 displays the percentage of each target population that achieved mastery rates of at least one. For all groups, the program objective was attained, that is more than 80 percent of each group attained a mastery rate of at least one. The nonpublic and L.E.P. populations showed the largest percentages of students attaining criterion (98 percent and 97 percent, respectively.)

Frequency distributions of mean I.C.R.T. mastery rates for regional, citywide and nonpublic school students are presented in Table 5.† The nonpublic school students achieved the highest mastery rates while the citywide group showed the lowest. Eighty-five percent of the nonpublic school population mastered reading skills at the rate of three per 20 sessions; this rate was achieved by 50 percent and 38 percent of the regional and citywide populations, respectively. A mastery rate of at least four skills (equivalent to one per week) was shown by 60 percent of the nonpublic school students but only 28 percent of the regional and 20 percent of the

†For consistency this and all subsequent analyses are reported only for I.C.R.T. data. Similar analyses for Leamos data are available from the Special Education Evaluation Unit of O.E.E.

Figure 1. Relative percentage of regional, citywide, nonpublic school and L.E.P. students that met or exceeded the achievement criterion (i.e., mastery of at least one skill per 20 45-minute sessions.)



- All program populations exceeded the criterion for the program's achievement objective.

Table 5

Frequency Distribution of Mean Mastery Rate for Regional, Citywide, and Nonpublic Populations

Mastery Rate[a]	Regional			Citywide			Nonpublic		
	Number of Students	Relative Percent	Cumulative Percent	Number of Students	Relative Percent	Cumulative Percent	Number of Students	Relative Percent	Cumulative Percent
5 or more	2,285	16%	16%	192	11%	11%	76	34%	34%
4	1,636	12	28	142	9	20	58	26	60
3	2,979	22	50	292	18	38	55	25	85
2	4,071	30	80	514	32	70	26	12	97
1	1,900	14	94	305	19	89	4	2	99
less than 1	887	6	100	178	11	100	2	1	100
	13,758	100		1,623	100		221	100	
	Median = 3.0			Median = 2.0			Median = 4.0		

[a]Average number of I.C.R.T. objectives skills mastered per 20 45-minute sessions.

- More than one-third of the nonpublic school students showed a mastery rate of five or more (equivalent to one skill per week); this rate was achieved by 16 percent and 11 percent of the regional and citywide populations, respectively.
- A mastery rate of two was achieved by 97 percent, 80 percent, and 70 percent of the nonpublic, regional, and citywide populations, respectively.

citywide students. The median mastery rates were four, three, and two, respectively.

The distribution of total reading objectives mastered for all English-speaking program students is displayed in Table 6. More than 33 percent of the population mastered 13 or more reading objectives during the project year and 11 percent mastered at least 21 objectives. Only three percent of the students failed to master any new skills.

Differences were observed among the regional, citywide, and nonpublic school populations in mean total mastery and mastery rates. (See Table 7.) Mean total objectives mastered was higher for the regional students than either the citywide or nonpublic school populations; the means were 10.9, 7.7, and 6.8, respectively. However, the nonpublic school students out performed both public school groups in mastery rate. Mean sessions to mastery, which represents the average number of sessions students required to mastery one new skill, was 4.6 for the nonpublic school population but 7.4 for the regional and 8.9 for the citywide students. Similarly, the nonpublic school group showed the highest mean mastery rate. The discrepancy in the findings for total mastery and mastery rate is attributable to differences in frequency of service between the public and nonpublic schools. The latter received fewer sessions per week, which limited the total number of objectives they could master, but mastered skills at a faster rate than the public school students.

The reader is cautioned against concluding, from these findings, that nonpublic school programs are better than public school programs. Previous evaluations have consistently observed an inverse relationship between mastery rate and number of program sessions. Although the interpretation

Table 6

Frequency Distribution of Total Reading Objectives Mastered by All English-Speaking Chapter 1/ P.S.E.N. Students[a]

Number of Objectives Mastered[b]	Number of Students	Relative Percent	Cumulative Percent
25 or more	745	5	5
21 - 24	906	6	11
17 - 20	1,274	8	19
13 - 16	2,223	14	33
9 - 12	3,648	23	56
5 - 8	3,747	23	79
1 - 4	3,022	18	97
0	499	3	100
	16,064	100	

[a] Includes public and nonpublic school students.

[b] Total number of I.C.R.T. objectives mastered for full program year.

- More than 33 percent of the population mastered 13 or more reading objectives during the project year; 11 percent of these students mastered at least 21 objectives.
- Only three percent failed to master any new objectives.

Table 7

Summary of Mean Reading Mastery for Regional, Citywide, and Nonpublic School Populations[a]

Population (N)	Objectives Mastered	Mastery Rate[b]	Sessions to Mastery[c]
Regional (14,117)	10.9 (7.7)	2.9 (2.0)	7.4 (5.9)
Citywide (1,720)	7.7 (5.4)	2.5 (2.0)	8.9 (7.5)
Nonpublic (226)	6.8 (3.7)	4.0 (1.7)	4.6 (2.6)

[a]Unparenthesized table entries are means; parenthesized values are standard deviations.

[b]Number of I.C.R.T. objectives mastered per 20 45-minutes sessions.

[c]Number of 45-minute sessions to master one new objective.

- Nonpublic school students showed the highest average rate of mastery but, due to less frequent instruction, the fewest total objectives mastered.
- Regional students, on average, mastered more total objectives at a faster pace than their citywide counterparts.

pretation of this finding is ambiguous, it may explain the rapid progress observed for the nonpublic school students. On the other hand, the superiority in achievement measures observed for the regional students relative to the citywide students does not appear to be confounded. Rather, the findings suggest that, on average, students in the regional programs mastered more skills at a faster rate than their citywide counterparts.

ATTENDANCE AND ACHIEVEMENT BY SPECIAL EDUCATION PROGRAM

Regional Programs

Attendance and achievement data were analyzed separately for the four special education programs that served 95 percent of the regional students. These analyses are presented in Table 8. The H.C. 30 and E.M.R. students showed the highest mean percentage attendance, 82.5 percent and 81.3 percent, respectively; the means for C.E.H. and N.I.E.H. students were 76 percent and 76.2 percent, respectively.

Analyses of achievement data showed that the N.I.E.H. population exhibited a higher rate of progress than students in the other special education programs. On average, N.I.E.H. students mastered one new objective for each 6.8 instructional sessions and 3.2 objectives in 20 sessions. Although the H.C. 30 population showed a lower rate of mastery (an average of 7.1 sessions to master one objective) than the N.I.E.H. group, their higher mean percentage of attendance resulted in more total objectives mastered; mean total mastery was 11.3 for H.C. 30 and 10.8 for N.I.E.H. The E.M.R. students mastered skills at a slower pace than the other groups, requiring an average of 8.7 sessions to master one new objective. However, their relatively high

Table 8

Breakdown of Achievement and Attendance by Special-Education Program for Regional Students[a] (English-Speaking)

Variable	EMR	CEH	HC 30	NIEH
Mean Total Mastery	9.9 (6.9)	10.2 (8.3)	11.3 (7.5)	10.8 (8.1)
Mean Sessions to Mastery[b]	8.7 (8.4)	7.1 (4.8)	7.4 (5.8)	6.8 (5.8)
Mean Mastery Rate[c]	2.5 (1.8)	3.0 (2.3)	2.9 (2.0)	3.2 (2.3)
Mean Percentage Attendance	81.3 (17.7)	76.0 (21.6)	82.5 (16.6)	76.2 (20.3)

The N's for each program were as follows: 1,312 E.M.R.; 2,169 C.E.H.; 8,371 H.C. 30; and 1,508 N.I.E.H.

[a] Unparenthesized table entries are means; parenthesized values are standard deviations.

[b] Number of I.C.R.T. objectives mastered per 20 45-minutes sessions.

[c] Number of 45-minute sessions to master one new objective.

- N.I.E.H. students mastered objectives at a faster rate than students in other special-education programs.
- The high mean percentage of attendance for H.C. 30 students resulted in the highest mean total mastery.

percentage attendance (M = 81.3 percent) bolstered total mastery (M = 9.9 objectives).

Citywide Programs

Attendance and achievement data for the three programs that comprised 91 percent of the citywide target population are displayed in Table 9. SLHIC students showed a higher mean percentage attendance than either H.C. 30 or C.E.H.; the means were 83 percent, 73.6 percent and 73.5 percent, respectively.

With respect to achievement, H.C. 30 students outperformed the other groups on all measures of mastery. However, their mean total mastery (M = 10.2 objectives) was somewhat depressed by low attendance. C.E.H. students showed a combination of low attendance and slow mastery rate which resulted in the lowest total mean mastery (M = 6.4) among the three groups. On the other hand, the slow mastery rate of SLHIC (M = 10.2 sessions to master one objective) was balanced by high attendance to yield a mean total mastery of 9.6 skills.

ATTENDANCE AND ACHIEVEMENT BY SCHOOL LEVEL

Regional Programs

Since only a small proportion of regional Chapter 1/P.S.E.N. students attended high-school-level programs, attendance and achievement data were analyzed only for regional students in elementary, intermediate, and junior high schools. (See Table 10.) As observed in previous program cycles, the elementary students surpassed their middle-school counterparts in both attendance and reading mastery. Mean percentage attendance for the elementary group (which comprised 55 percent of the regional population) was 84 percent;

Table 9

Breakdown of Achievement and Attendance by Special-Education Program for Citywide Students

Variable	C.E.H.	H.C. 30	SLHIC
Mean Total Mastery	6.4 (4.7)[a]	10.2 (6.5)	9.6 (5.1)
Mean Sessions to Mastery	9.0 (6.8)	8.6 (5.4)	10.2 (9.3)
Mean Mastery Rate	2.3 (1.8)	2.6 (1.6)	2.2 (1.5)
Mean Percentage Attendance	73.5 (24.3)	73.6 (20.0)	83.0 (15.3)

NOTE. The N's for each program were as follows: 985 C.E.H.; 117 H.C. 30; and 470 SLHIC

[a]Parenthesized values are standard deviations.

- SLHIC showed the highest mean percentage attendance of the citywide special-education programs.
- On average, H.C. 30 students mastered more skills at a faster pace than C.E.H. or SLHIC.
- While C.E.H. students showed a higher mean rate of mastery than SLHIC, the former's lower mean percentage attendance resulted in lower mean total mastery.

Table 10

Breakdown of Achievement and
Attendance by School Level
for Regional Students

Variable	Elementary	Intermediate	Junior High
Mean Total Mastery	11.9 (8.0)	9.9 (7.4)	9.7 (2.3)
Mean Sessions to Mastery	6.8 (5.5)	8.5 (7.1)	7.7 (4.2)
Mean Mastery Rate	3.1 (2.0)	2.4 (2.2)	2.7 (1.9)
Mean Percentage Attendance	84.0 (15.4)	77.5 (19.7)	75.5 (20.8)

The N's for each school level were as follows: 7,729 elementary; 2,654 intermediate; and 3,717 junior high.

- Elementary-school students in the regions surpassed those in intermediate and junior-high school in both reading achievement and attendance.

the means for intermediate and junior-high students were 77.5 percent and 75.5 percent, respectively. Similarly, on average, the elementary-school students mastered a greater number of objectives at a faster pace than students at higher levels. The elementary-school population mastered an average of 11.9 skills at the rate of one every 6.8 sessions; intermediate-school students mastered an average of 9.9 skills at the rate of one per 8.5 sessions; junior-high- school students mastered an average of 9.7 objectives at the rate of one per 7.7 sessions.

Citywide Programs

Attendance comparisons for the students in citywide programs (See Table 11), which included high-school-level facilities, such as Occupational Training Centers and Schools for Career Develoment, showed a pattern of findings similar to those for regional programs: there was an inverse relationship between mean percentage attendance and school level. That is, attendance was highest for elementary schools and lowest for high schools; the means were 85.5 percent for the former and 70.9 percent of the latter. On the other hand, the relationships between achievement and school level for citywide programs were more complex than those for the regions.

The rate of mastery of reading objectives was much faster for high schools than the other three levels; high-school students mastered one new skill in an average of 6.1 sessions compared to approximately 10 and 11 sessions for the other school levels. Despite the faster rate of mastery, the higher attendance of elementary students resulted in a mean total mastery of 8.6 objectives compared to 7.9 for high schools. The combination

Table 11

Breakdown of Achievement and
Attendance by School Level
for Citywide Students

Variable	Elementary	Intermediate	Junior High	High School
Mean Total Mastery	8.6 (5.5)	7.6 (4.0)	6.8 (5.4)	7.9 (5.7)
Mean Sessions to Mastery	10.8 (10.3)	10.0 (6.1)	10.1 (7.0)	6.1 (4.2)
Mean Mastery Rate	2.1 (1.5)	2.0 (1.2)	2.0 (1.3)	3.5 (2.6)
Mean Percentage Attendance	85.5 (15.3)	74.4 (22.2)	73.8 (21.9)	70.9 (23.9)

The N's for each school level were as follows: 454 elementary; 248 intermediate; 444 junior high; and 574 high school.

- Mean percentage attendance was highest for elementary-school students and lowest for high-school-level students.
- High-school-level students mastered skills at a faster rate than elementary students. However, higher attendance resulted in higher mean total mastery for the latter.

of low attendance and mastery rates contributed to low mean total mastery for the middle schools (M = 7.6 for intermediate and M = 6.8 for junior high schools.) As high-school students comprised 33 percent of the total citywide Chapter 1/P.S.E.N. population, their high rate of mastery bolstered the mean for the Citywide Services Unit population.

TYPES OF READING OBJECTIVES MASTERED

To determine the kinds of reading skills that students mastered, achievement data were analyzed by the three major reading components of the I.C.R.T.: vocabulary and comprehension†, phonics, and word analysis. Vocabulary skills include synonyms and antonyms, definitions, and multiple meanings; comprehension skills include inference, perceiving cause and effect, grasping main idea, distinguishing among fact, fiction, and opinion, etc; phonics examines knowledge of the sounds of beginning and final consonants and regular and irregular vowels; and word analysis skills include plurals, verb variants, possessives, roots, and affixes.

Achievement-data records were analyzed to determine the numbers and percentages of students who mastered at least one objective in each reading component. Table 12 presents these data for the total regional and citywide populations and by special education program. For both regional and citywide populations, a larger percentage of students mastered comprehension and vocabulary skills than the other reading components. This finding is consistent with the program's emphasis on comprehension. For all components, a larger percentage of regional than citywide students showed mastery.

†Since the I.C.R.T. has few objectives in comprehension, meaningful analysis was facilitated by merging vocabulary and comprehension skills.

Table 12

Percentage of Students in Each Program
Who Mastered Objectives in Component Reading Skills

Program	Comprehension[a]	Phonetic Analysis	Structural Analysis
Regional			
E.M.R.	67	83	63
C.E.H.	86	54	60
H.C. 30	86	70	69
N.I.E.H.	83	67	66
Total	84	68	67
Citywide Services			
C.E.H.	80	40	43
H.C. 30	79	79	79
SLHIC	73	75	74
Total	78	53	55

Note. Table entries represent the percentage of students in each program who mastered at least one objective in a reading component.

[a]Includes vocabulary skills.

- Overall, a larger percentage of regional than citywide students mastered skills in all components.
- Among regional programs, a greater percentage of C.E.H., H.C. 30, and N.I.E.H. students mastered skills in comprehension than the other reading components; a larger percentage of E.M.R. students mastered skills in phonetic analysis than comprehension and structural analysis.
- Among citywide programs, C.E.H. students mastered skills primarily in comprehension; H.C. 30 and SLHIC students mastered skills equally in all components.

Some differences in the mastery of reading components were observed among special education programs within regions and citywide. For the regions, a smaller percentage (67 percent) of E.M.R.s mastered objectives in comprehension than the other special education populations (i.e. C.E.H., H.C. 30, and N.I.E.H.). A primary focus of remedial instruction for E.M.R.s was phonics; 83 percent of E.M.R.s mastered phonics objectives compared to 70 percent for H.C. 30, 67 percent for N.I.E.H., and 54 percent for C.E.H.

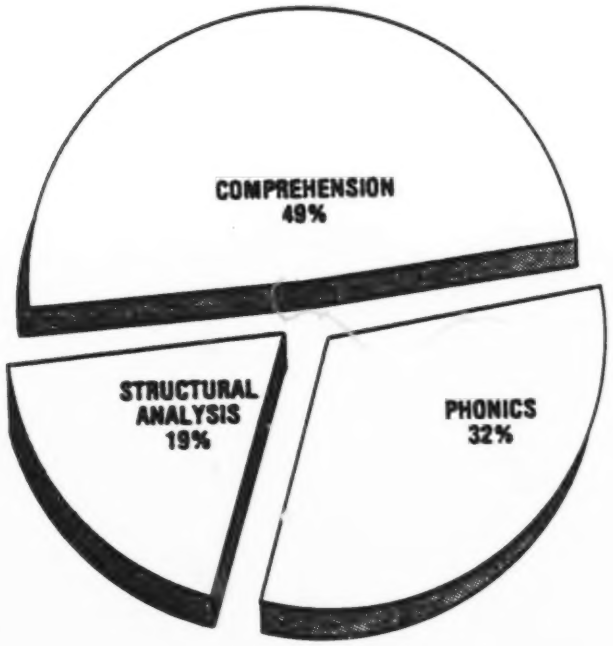
Among citywide programs, 80 percent and 79 percent of the C.E.H. and H.C. 30 populations, respectively, mastered skills in comprehension and vocabulary; only 73 percent of the SLHIC students mastered skills in these components. While C.E.H. students focussed primarily on comprehension, equal percentages of the H.C. 30 and SLHIC students mastered skills in all of the reading components. Across all components, mastery was shown by a higher percentage of regional than citywide students.

Component mastery was also analyzed as a percentage of total objectives mastered. For all program participants, approximately half of the objectives mastered were in the area of comprehension and one-third in phonics. (See Figure 2.) Among regional programs (see Figure 3), nearly three-fifths of the objectives mastered by C.E.H. students were in comprehension compared to 26 percent for the E.M.R.s; more than half of the objectives mastered by E.M.R.s were in phonics. For citywide programs (see Figure 4), more than three-fifths of the objectives mastered by C.E.H. students were in comprehension, compared to 42 percent for H.C. 30, and 31 percent for SLHIC. Phonics comprised 42 percent and 36 percent of the objectives mastered by SLHIC and H.C. 30 students, respectively.

Figure 2

Reading Component Mastery
as a Percentage of Total Objectives Mastered

ALL PROGRAM PARTICIPANTS

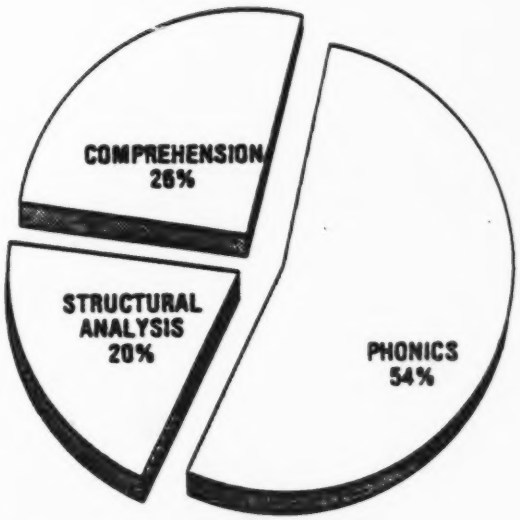


- For all program participants, half of all objectives mastered were in comprehension (which includes vocabulary) and one-third were in phonics.

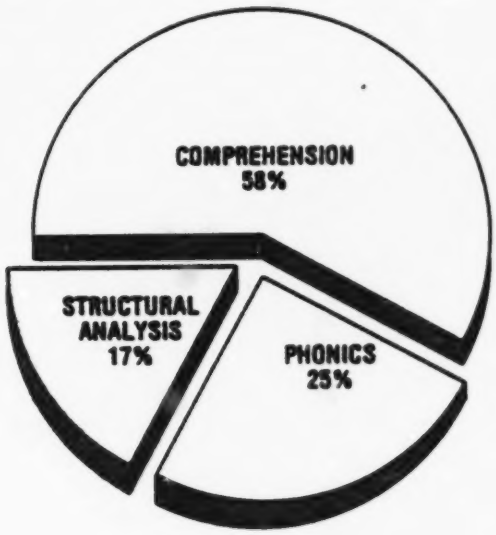
Figure 3

Reading Component Mastery as a Percentage of Total Reading Objectives Mastered

REGIONAL SERVICES



E.M.R.



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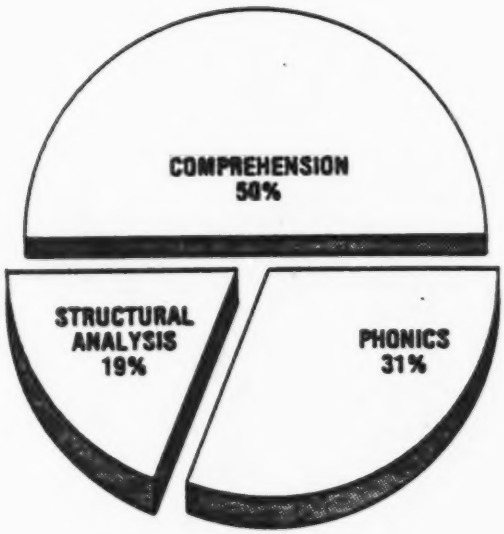
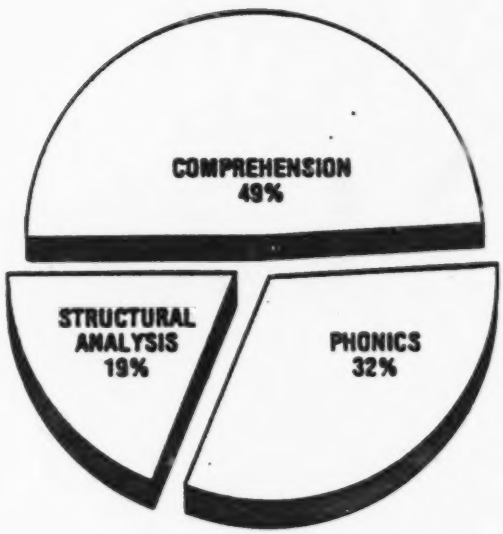


H.C.30



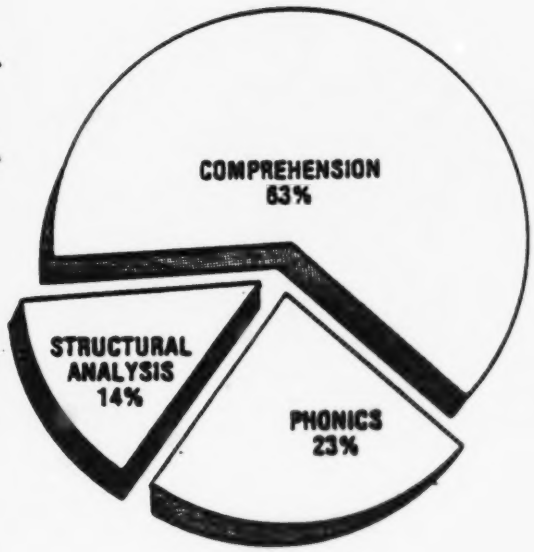
N.I.E.H.

- For regional students, nearly three-fifths of the objectives mastered by C.E.H. students were in comprehension compared to 26 percent for E.M.R.s; for the latter, more than half of the mastered skills were in phonics.

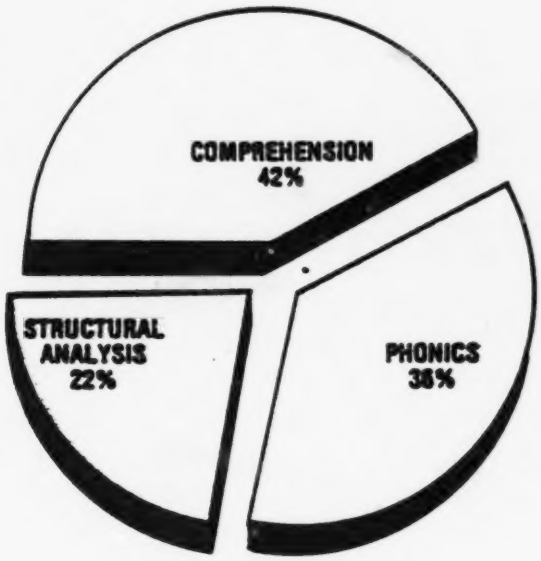
Figure 4

Reading Component Mastery as a Percentage of
Total Reading Objectives Mastered

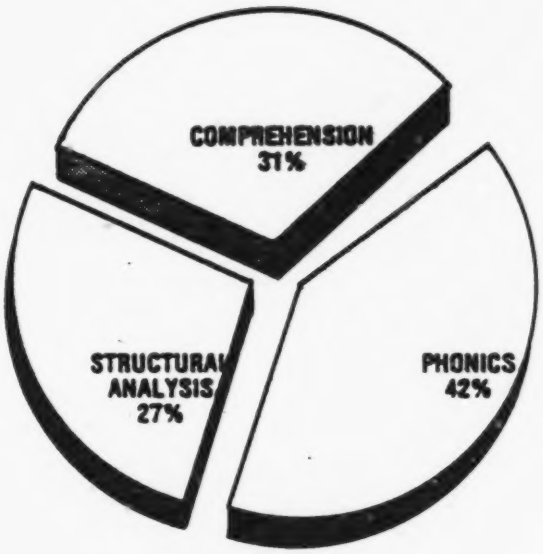
CITYWIDE SERVICES



C.E.H.



H.C.30



S.L.H.I.C.

• For citywide programs, more than three-fifths of the objectives mastered by C.E.H. students were in comprehension, compared to 42 percent for H.C. 30 and 31 percent for SLHIC.

INSTRUCTIONAL MASTERY LEVEL

In addition to the rate, number, and types of objectives mastered, the data were analyzed for instructional mastery level (I.M.L.) in comprehension based on the grade level-objective correlation chart in the I.C.R.T. manual. I.M.L. was operationally defined as the highest grade equivalent in which a student mastered at least one new reading objective. Thus, rather than an average level of functioning, this variable represents the highest level of achievement and is closely tied to level of instruction. I.M.L.s can be computed only for students who have mastered at least one objective in comprehension; for others it is indeterminate.

I.M.L. Distributions for Regional and Citywide Students

To describe the general level of reading comprehension and instruction of Chapter 1/P.S.E.N. students, January 1983 I.C.R.T. data were analyzed for I.M.L. and crosstabulated by age for regional, citywide, and nonpublic school populations. (See Table 13.) For the regional population, the majority of students up to age 11 had I.M.L.s of one and two; 45 percent of the 12 and 13 year olds had I.M.L.s of three and four and 17 percent had I.M.L.s of four and five; and 27 percent of the 14 and 15 year olds had I.M.L.s of five and six.

Comparison of I.M.L.s by age between regional and citywide students revealed that, for all ages, a larger percentage of regional students showed I.M.L.s above four. Among the three populations (i.e., regional, citywide and nonpublic), with the exception of 14 to 15 year olds, the nonpublic-school students consistently showed the lowest percentage of I.M.L.s above four.

Student Gains In I.M.L. (Spring 1983)

During 1982-83, reading-achievement data were gathered twice, once at

Table 13

Crosstablulation of Instructional Mastery Level (I.M.L.) in Comprehension by Age for Regional, Citywide, and Nonpublic Students in January 1983

I.M.L.	Age				
Regions	8 - 9	10 - 11	12 - 13	14 - 15	16+
1 - 2	82%	56%	34%	27%	NA
3 - 4	16	35	45	40	NA
5 - 6	2	8	17	27	NA
7 - 8	0	1	4	6	NA
(N)	(780)	(2,133)	(3,166)	(1,850)	NA
Citywide					
1 - 2	NA	66	49	41	34
3 - 4	NA	27	39	36	26
5 - 6	NA	6	9	16	24
7 - 8	NA	1	3	7	16
(N)	NA	(71)	(159)	(289)	(278)
Nonpublic					
1 - 2	NA	64	42	30	77
3 - 4	NA	32	49	46	15
5 - 6	NA	4	9	24	8
7 - 8	NA	0	0	0	0
(N)	NA	(22)	(43)	(37)	(13)

- For all ages a larger percentage of regional students showed I.M.L.s above four than students in citywide or nonpublic-school programs.

the end of January and again in mid-June. To measure student gains in I.M.L. during the four and one-half months between data collections, student I.M.L.s for January and June were compared.† (See Table 14.) Overall, of the 5,267 students with I.M.L.s in comprehension for both fall and spring, 29 percent showed a higher I.M.L. in June than January, 59 percent remained at the same I.M.L., and 12 percent retrenched to a lower I.M.L. A higher percentage of regional students showed I.M.L. gains than citywide or nonpublic school students; the relative percentages were 30 percent, 24 percent, and 24 percent, respectively. On the other hand, a larger percentage of citywide students retrenched to lower I.M.L.s than regional or nonpublic school students; the relative percentages were 16 percent, 12 percent, and nine percent, respectively.

These same data are broken-down by school level in Table 15. Within the regions, a larger percentage of intermediate-school students showed I.M.L. gains than elementary and junior high; the relative percentages were 35 percent, 28 percent, and 29 percent, respectively. Within the citywide population, a higher percentage (31 percent) of high-school level students advanced in I.M.L. than students at other levels; once again, the lowest percentage (17 percent) was observed for elementary school.

To determine whether gains in I.M.L. were related to pretest levels (i.e. I.M.L. in January, 1983), the percentage of students that showed higher I.M.L.s in June than January were calculated for each pretest I.M.L. (i.e., one through seven.) Table 16 presents these data for regional and

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†The N for this analysis includes only students who attempted at least one objective in comprehension by the end of both the fall and spring semesters.

Table 14

Percentage of Students With June 1983
Comprehension I.M.L.s Lower, the Same, or Higher
than January 1983

Population	N[a]	% Lower	% Same	% Higher
Regional	4,758	12	58	30
Citywide	446	16	60	24
Nonpublic	63	9	67	24
Total	5,267	12	59	29

Note. Instructional Mastery Level (I.M.L.) is the grade level associated with the highest I.C.R.T. reading objective mastered by a given date. These data reflect changes in the level of comprehension objectives mastered by each student over the course of the spring semester.

[a]Includes students with comprehension I.M.L.s reported for both January 1983 and June 1983.

- A larger percentage of regional students achieved higher comprehension I.M.L.s in June relative to January 1983 than citywide or nonpublic students.
- A larger percentage of citywide students retrenched to lower comprehension I.M.L.s than the other two populations.

Table 15

Percentage of Regional and Citywide Students
Showing Lower, the Same, or Higher Comprehension I.M.L.s
During Spring 1983 by School Level

School Level	N	% Lower	% Same	% Higher
Regional				
•Elementary	2,097	11	61	28
•Intermediate	986	11	54	35
•Junior High	1,672	13	58	29
Citywide				
•Elementary	89	8	74	17
•Intermediate	68	34	41	25
•Junior High	153	15	65	20
•High School	135	13	56	31

Note. Table entries represent the percentage of students at each school level who showed lower, the same, or higher comprehension I.M.L.s in June 1983 than January 1983.

- Within the regional population, a larger percentage of intermediate-school students showed I.M.L. gains than elementary or junior high.
- Within the citywide population, a larger percentage of high-school level students advanced in I.M.L. than students at lower levels.

citywide students broken-down by school level. For the regional students at all school levels, with few exceptions, the percentages of students showing I.M.L. gains were similar across all pretest levels. Approximately one-quarter of the elementary school students at Levels 1, 3, 4 and 6 showed I.M.L. gains; one-third of those at Level 2 and 16 percent of those at Level 5 advanced. For middle-school students (i.e., intermediate and junior high), gains were shown by one-third to two-fifths of the students at pretest Levels 1 to 4; the percentage showing gains declined at pretest Level 5, although it was 33 percent for the junior-high students at Level 7.

The citywide students in high schools showed gains across all pretest levels, with a particularly high percentage at Levels 2 and 3. Due to the small number of students at higher pretest levels, the gains for elementary students were concentrated at Levels 1 to 3 and those for middle school at Levels 1 to 5. Thus, the I.M.L. gains for both regional and citywide populations were distributed throughout the range of pretest levels represented at each school level.

I.M.L. gains were also analyzed by special-education program for the regions and citywide. (See Table 17.) Inter-program comparisons for the regions indicated that C.E.H. and N.I.E.H. had the highest percentages of students showing January to June I.M.L. gains (33 percent for the former and 31 percent for the latter.) The E.M.R. program had the lowest percentage (26 percent) of students showing gains and the highest percentage showing retrenchment (19 percent).

Among citywide programs, C.E.H. and SLHIC had higher percentages of students showing gains (25 percent and 22 percent, respectively) than H.C.

Table 16

Percentage of Regional and Citywide Students Showing Gains in Comprehension I.M.L.s During Spring '83 by Pretest I.M.L.[a]

	Pretest I.M.L. (Jan. '83)						
School Level	1	2	3	4	5	6	7
Regional							
•Elementary	26	33	29	26	16	23	0
•Intermediate	35	41	40	32	27	26	19
•Junior High	42	41	34	34	14	25	33
Citywide							
•Elementary	38	74	37	0	NA[b]	NA	NA
•Middle	70	62	36	30	50	17	0
•High School	46	70	50	39	31	31	33

NOTE. Table entries represent the percentage of students at a given I.M.L. in January 1983 that showed a higher I.M.L. in June 1983. Since eight was the highest I.M.L. attainable, students who achieved this level at pretest were not included.

[a]Pretest I.M.L. is value reported in January 1983.

[b]No students in cell.

- For the citywide high school population, at least one-third of the students at all pretest I.M.Ls showed higher levels in June 1983; no citywide elementary students with pretests above three progressed to a higher level.

- For regional students at all school levels (i.e., elementary, intermediate, and junior high), the percentage of students showing gains in I.M.L. were distributed across a wide range of pretest I.M.L.s.

Table 17

Percentage of Regional and Citywide Students
Showing Lower, the Same, or Higher Comprehension I.M.L.s
During Spring 1983 Special by Education Program

Program	N	% Lower	% Same	% Higher
Regional				
•E.M.R.	181	19	55	26
•C.E.H.	737	10	57	33
•H.C. 30	3,107	11	60	29
•N.I.E.H.	488	12	57	31
Citywide				
•C.E.H.	293	19	56	25
•H.C. 30	30	20	63	17
•SLHIC	120	7	71	22

Note. Table entries represent the percentage of students in each special-education program that showed lower, the same, or higher I.M.L.s in June 1983 than January 1983.

- Among regional programs C.E.H. and N.I.E.H. had the highest percentage of students registering I.M.L. gains between January 1983 and June 1983.

- Among citywide programs, C.E.H. and SLHIC had higher percentages of students showing I.M.L. gains than H.C. 30.

30 (17 percent). Also, SLHIC showed the lowest percentage of retrenchment (seven percent).

Sustained Gains in I.M.L.

To ascertain year-to-year, or sustained, gains in reading performance as measured by the I.C.R.T., changes in comprehension I.M.L. were analyzed for continuing students between June 1982 and June 1983. Using June 1982 I.M.L.s as a baseline, the cumulative percentage of continuing Chapter I/P.S.E.N. students showing gains by the middle and end of the project year (i.e., January and June 1983) were computed. (See Tables 18.) Overall, by January 1983, 46 percent of both regional and citywide continuing students showed gains in comprehension I.M.L. over June 1982. By June 1983, 55 percent of the regional and 49 percent of the citywide continues showed gains, representing an additional nine percent and three percent of the regional and citywide groups, respectively. Thus, most of the continuing students who showed sustained I.M.L. gains achieved these gains during the first half of the project year. Since I.M.L. reflects the level of reading instruction, these findings indicate that almost half of the continuing students were presented and mastered more difficult reading material during the first half of the project year than the previous spring; thereafter, the level of instructional difficulty was raised for only a small proportion of continuees.

Table 18 also presents an analysis of sustained gains by pretest I.M.L. For the regional students the relationship between pretest I.M.L. and percentage of continuees showing gains is inverse. That is, the higher the pretest I.M.L., the lower the percentage of students showing gains.

Table 18

Cumulative Percentage of Continuing Students
Showing Sustained Gains in Comprenhension I.M.L.
by Pretest (June 1982) I.M.L.

June '82		Regional			Citywide	
I.M.L.	(N)	Jan.'83	June '83[a]	(N)	Jan. '83	June '83[a]
1	(740)	56%	63%	(52)	48%	52%
2	(432)	51	63	(52)	56	73
3	(467)	46	55	(36)	47	39
4	(342)	35	48	(22)	36	32
5	(219)	27	34	(27)	44	41
6	(58)	19	33	(19)	26	26
7	(15)	27	33	NA	NA	NA
Total	(2,273)	46	55	(208)	46	49

Note. Table entries represent the percentage of containing students who achieved specific I.M.L.s in June 1982 and increased at least one I.M.L. by January 1983 or June 1983. A June 1983 entries are cumilative percentage; that is, they include students who showed I.M.L. gains i January 1983.

[a] June 1983 entries are cumulative percentages; that is they include students who showed I.M.L. gains in January 1983.

- Most of the containing students who showed sustained I.M.L. gains achieved these gains by January, 1983.
- By June 1983, sustained gains in I.M.L. were shown by 55 percent of the regional students and 49 percent of the citywide students.

Table 19

Percentage of Continuing Regional and Citywide Students
Showing Lower, the Same, or Higher Comprehension
I.M.L.s Between June 1982 and June 1983
by Special Education Program

Population	N	% Lower	% Same	% Higher
Regional				
•H.C. 30	(1,099)	20	31	49
•C.E.H.	(303)	17	31	52
•N.I.E.H.	(168)	35	30	35
•E.M.R.	(68)	21	26	53
Citywide				
•C.E.H.	(114)	25	28	47
•SLHIC	(16)	50	37	13
•H.C. 30	(59)	10	37	53

- For the regional programs, approximately half of the H.C. 30, C.E.H. and E.M.R. continuing students showed sustained gains in comprehension I.M.L. by June 1983.
- For citywide programs, approximately half of the C.E.H. and H.C. 30 students, but only 13 percent of SLHIC, showed sustained gains.

This finding holds for both January and June gains. The pattern of sustained gains in January for citywide students was more consistent across pretest I.M.L.s. That is, for the most part, the percentage of students showing gains was similar at all pretest levels. However, the data for June exhibit some inconsistencies. While a larger percentage of students at pretest Level 2 showed a higher I.M.L. in June than January (73 percent and 56 percent, respectively), the reverse was seen for pretest I.M.L.s at Level 3 and above. This suggests that for some of the students, the level of instruction established in the fall may have been too high.

One-year sustained gains in I.M.L. were analyzed by special education program for regional and citywide continuing students. (See Table 20.) For the regional populations, approximately half of the H.C. 30, C.E.H., and E.M.R. groups showed sustained gains in I.M.L.; only 35 percent of the N.I.E.H. students showed gains while an equal number declined. For citywide programs, approximately half of the C.E.H. and H.C. 30 groups, but only 13 percent of SLHIC, showed sustained gains; half of the latter declined.

Sustained gains were further investigated by an analysis of retrenchment and repetition in the mastery of I.C.R.T. objectives. To accomplish this the fall semester I.C.R.T. records of continuing students were analyzed to determine the number of newly mastered objectives each student had already mastered during the prior project year. Overall, during the fall semester 5,329 continuing students mastered a total of 29,509 objectives, of which 4,646 (15 percent) objectives had been mastered during the previous year. Put another way, continuing students mastered an average of 5.5 (S.D.-2.9) objectives, and an average 0.9 (S.D-1.5) of these were repeated from the past year.

Thus, 85 percent of all objectives mastered by continuing students during the fall semester represented new learning or sustained growth.

STANDARDIZED ACHIEVEMENT TEST GAINS

Each April all special-education pupils in grades 2 thru 9 in the New York City public schools, who are not I.E.P.-exempt, are administered a standardized reading test as part of the citywide achievement test program. To further document the impact of the Chapter I/P.S.E.N. program and extricate its effect from that of basic instruction, the 1982 and 1983 citywide test scores of program students were compared to those of non-program special education students. The citywide test for both years was the California Achievement Test (CAT), Form C in 1982 and Form D in 1983.

To ensure the internal validity of this assessment, the analysis only included students who were tested on level in both 1982 and 1983 and demonstrated non-random test protocols.† It should be noted that many special-education students were allowed test modifications, including waiver of time limit, special test location, and alternate method of recording answers. However, since test modifications were equally frequent for the program and non-program groups, the analysis was not confounded. In addition, since the distributions of pretest (i.e., 1982) scores for program students substantially overlapped those for non-program special education students, the latter were used as a comparison group without concern for confounding due to differential regression effects. The analysis was performed on samples of 3,230 program and 6,950 non-program students.

†The criteria and procedures used to screen test protocols are described in a separate report on the efficacy of the citywide reading achievement tests for evaluating reading programs for special-education students.

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TABLE 20

Mean 1982 and 1983 CAT Scores for
Chapter 1/P.S.E.N. and Non-Chapter 1/P.S.E.N Special Education
Students by 1983 Test Level[a]

1983 Test Level	Group	N[b]	(%)[c]	1982 Mean NCE	(S.D.)[d]	1983 Mean NCE	(S.D.)	Mean Gain	(S.D.)
13	CHAPTER 1	108	(3)	25.3	(16.3)	24.5	(15.2)	-0.8	(15.0)
	NON-CHAPTER 1	516	(7)	23.2	(17.1)	23.5	(16.5)	0.3	(14.9)
14	CHAPTER 1	784	(24)	23.2	(12.2)	35.2	(14.2)	12.0	(15.5)
	NON-CHAPTER 1	1,598	(23)	25.0	(12.9)	36.1	(13.7)	11.1	(15.1)
15	CHAPTER 1	155	(5)	39.4	(13.7)	40.0	(14.9)	0.6	(12.3)
	NON-CHAPTER 1	426	(6)	41.0	(14.5)	42.6	(16.8)	1.6	(13.8)
16	CHAPTER 1	524	(16)	33.8	(12.5)	35.4	(13.3)	1.6	(12.3)
	NON-CHAPTER 1	1,194	(17)	36.5	(14.8)	37.8	(14.5)	1.3	(12.7)
17	CHAPTER 1	1,427	(44)	26.8	(13.2)	34.4	(13.8)	7.6	(14.4)
	NON-CHAPTER 1	2,572	(38)	28.7	(13.4)	35.1	(14.0)	6.4	(14.6)
18	CHAPTER 1	232	(8)	35.1	(15.0)	36.1	(14.9)	1.0	(13.7)
	NON-CHAPTER 1	644	(9)	42.4	(15.3)	42.5	(15.7)	0.1	(12.5)
TOTAL	CHAPTER 1	3,230	(100)	28.2	(13.9)	34.8	(14.2)	6.6	(14.8)
	NON-CHAPTER 1	6,950	(100)	30.8	(15.4)	36.1	(15.2)	5.3	(14.7)

[a]For each group tested at a given level in 1983, 1982 test level varied. For instance, the students tested at Level 14 in 1983 were tested at Levels 12, 13, or 14 in 1982.

[b]Includes only thuse students with non-random scoring patterns.

[c]Relative percent of total Chapter 1/P.S.E.N. or Non-Chapter 1/P.S.E.N. sample.

[d]Standard deviation.

- Overall, Chapter 1/P.S.E.N. special-education students showed an average sustained gain of 6.6 N.C.E.s on the CAT compared to 5.3 for their non-chapter 1/P.S.E.N. counterparts.
- The largest gains for both groups were at test Levels 14 and 17.

TABLE 21

Mean 1982 and 1983 CAT Scores
For Chapter 1/P.S.E.N. and Non-Chapter 1/P.S.E.N. Special Education Students by Program

Program	Group	N	1982 Mean NCE (S.D.)[a]	1983 Mean NCE (S.D.)	Mean Gain (S.D.)
E.M.R.	Chapter 1	124	19.1 (9.3)	23.0 (10.6)	3.9 (12.4)
	Non-Chapter 1	235	19.5 (10.5)	21.4 (10.7)	1.9 (13.0)
H.C. 30	Chapter 1	2,028	27.4 (13.1)	34.2 (13.1)	6.8 (14.5)
	Non-Chapter 1	3,581	28.5 (13.3)	34.3 (13.6)	5.8 (14.5)
N.I.E.H.	Chapter 1	354	26.9 (12.5)	34.8 (14.3)	7.9 (15.8)
	Non-Chapter 1	767	28.5 (14.1)	34.6 (14.3)	6.1 (15.9)
C.E.H.	Chapter 1	522	34.8 (15.3)	40.8 (14.3)	6.0 (15.2)
	Non-Chapter 1	1,698	38.3 (16.8)	43.6 (15.4)	5.3 (14.9)
SLHIC	Chapter 1	83	21.9 (13.9)	27.5 (16.5)	5.6 (17.3)
	Non-Chapter 1	199	23.9 (12.2)	28.0 (13.2)	4.1 (16.2)

[a]Standard deviation.

- For all major special-education programs, the gains of Chapter 1/P.S.E.N students exceeded those of non-Chapter 1/P.S.E.N. students.
- N.I.E.H. students showed the largest gains and E.M.R.s the smallest.

Table 20 displays the mean 1982-1983 CAT scores in normal curve equivalents (N.C.E.s) for program and non-program students, broken-down by test level. Overall, the mean gain for program students, 6.6 (S.D. = 14.8), exceeded that for non-program students, 5.3 (S.D. = 14.7), by 1.3 N.C.E.s. Chapter 1/P.S.E.N. students showed means of 28.2 (S.D. = 13.9) and 34.8 (S.D. = 14.2) for 1982 and 1983 respectively; the respective means for non-program students were 30.8 (S.D. = 15.4) and 36.1 (S.D. = 15.2).

Inspection of these data by 1983 test level indicates that the largest gains, as well as the largest discrepancy in gains between program and non-program groups occurred at Levels 14 and 17. Since these test levels correspond to the gates in the city's promotional policy, they were administered to the majority of the students in both groups. At Level 14, program students gained 12 (S.D. = 15.5) N.C.E.s compared to 11.1 (S.D. = 15.1) for the non-program students; the gains at Level 17 were 7.6 (S.D. = 14.4) and 6.4 (S.D. = 14.6), respectively.

Achievement test data are analyzed by special-education program in Table 21. For all major special-education programs, the gains for program students were larger than those for non-program students. The respective magnitude of program- and non-program-group gains ranged from 3.9 (S.D. = 12.4) and 2.0 (S.D. = 13.0) for E.M.R.s to 7.9 (S.D. 15.8) and 6.1 (S.D. = 15.9) for N.I.E.H. Thus, although the absolute managnitude of gains varied, the program seemed to have a positive impact on all disability groups.

V. CONCLUSIONS AND RECOMMENDATIONS

This evaluation concludes that the 1982-83 Chapter 1/P.S.E.N. Individualized Reading Services for Handicapped Students Program was completely implemented and successfully met its pupil achievement objective. Moreover, program students demonstrated sustained gains in reading mastery and improvement on standardized citywide reading tests that surpassed the gains of nonprogram special education students.

The assessment of program implementation found that all staff, including special education classroom teachers, actively participated in direct instruction to achieve a high degree of individualization. Flexible grouping strategies ensured that instruction was provided at appropriate functional levels and remediation teams used a wide variety of methods and materials to maintain pupil interest and accomodate different learning styles.

Since little time was allotted for formal conferences, remediation teams and classroom teachers had to seize fortuitous opportunities to confer on instructional planning. Also, staff interviews pointed to the need for classroom-teacher participation in the program's highly effective staff-training component.

Conclusions based on supplementary analyses of program achievement data were as follows:

- The program's effect on the rate of mastery of reading objectives varied among special education programs both within and between the regions and citywide services. Overall, regional students mastered an average of 20 percent more skills per unit time than citywide-services students. Within regions, the highest rates of mastery were achieved by N.I.E.H. students; citywide, the highest rates were achieved by H.C. 30.

- The programs's effect on reading mastery varied between school levels. Mastery rates were highest for elementary school students in the regions and high school students in citywide programs. However, for the latter, low mean attendance reduced total objectives mastered overall.

- The program's main focus was on comprehension with a secondary focus on phonics. For all participants, approximately half of the objectives mastered were in comprehension and one-third in phonics. Once again, however, differences were observed among special education programs with comprehension objectives comprising three-fifths of the skills mastered by regional C.E.H. students but only one-quarter of the skills mastered by E.M.R. students.

- While the magnitude of standardized reading achievement test gains varied among special education programs, the Chapter 1/P.S.E.N. students in all major programs showed higher mean gains than their non-Chapter 1/P.S.E.N. counterparts.

The following recommendations are offered for the further enhancement of program implementation and student gains:

- encourage increased cooperative instructional planning between Chapter 1/P.S.E.N. and special education classroom teachers;

- strengthen efforts to provide pre-service and in-service training to the special education classroom teachers of target students; and

- expand efforts to improve attendance at parent education workshops.